AMENDMENTS TO THE CLAIMS

1. (Currently Amended) In a system recording and playing back a transport stream transmitted by a digital broadcast, a digital video record/playback apparatus comprising:

an output control unit configured to output a predetermined playback mode;

a transmission control unit configured to control a transmission bit rate and transmission time point of the transport stream based on the predetermined playback mode and ~~VBV (video buffering verifier)~~ buffer status information;

a demux configured to perform ~~an STC~~a STC (system time clock) count initialization ~~and STC count control~~on a PCR (program clock reference) packet of the transport stream inputted via the transmission control unit, the demux configured to synchronize the STC count with a STC, the demux further configured to extract ES (elementary stream) data for a program data packet of the transport stream;

~~a VBV~~a buffer configured to temporarily store the extracted ES data, the VBV buffer configured to play a role in buffering between the transmission bit rate and a decoding frame rate, ~~the VBV~~the buffer configured to output a buffer status to the transmission control unit; and

a decoder configured to adjust DTS (decoding timestamp) according to the predetermined playback mode of the output control unit, the decoder configured to control a decoding time point by comparing a difference between the adjusted DTS ~~to an~~and the STC count value to a reference time and decoding the ES data outputted from ~~the VBV~~the buffer.

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2. (Currently Amended) The apparatus of claim 1, wherein the transmission control unit

adopts an equation of $\{$ $\begin{array}{ll} R_n = \dfrac{B - B_n}{t_{n+1} - t_n} \,, & if \ R_n \le R_{t\max} \\[12pt] R_{t\max} \,, & if \ R_n > R_{t\max} \end{array}$ $\}$ to control the transmission bit

rate R_n in case of a normal playback mode and wherein $t_{n+1} - t_n$ is a decoding cycle, $B - B_n$ is a

vacant quantity of ~~the VBV~~ the buffer, and R_{tmax} is a maximum transmission bit rate.

3. (Previously Presented) The apparatus of claim 1, wherein the transmission control unit

is configured to control the decoding time point by adjusting the DTS by adopting an equation of

$\{$ $\begin{array}{ll} DTS'_n = DTS_0 \,, & n = 0 \\[12pt] DTS_0 + \dfrac{DTS_n - DTS_0}{N} \,, & n \ne 0 \end{array}$ $\}$ in case of an N-times speed forward trick

play mode and wherein $DTS_n{}'$ is a new DTS value corresponding to the decoding time point and

DTS_0 is a DTS value of a first picture at the beginning of a trick play.

4. (Previously Presented) The apparatus of claim 1, wherein the transmission control unit

is configured to control the decoding time point by adjusting the DTS by adopting an equation of

$\{$ $\begin{array}{ll} DTS'_n = DTS_L \,, & n = 0 \\[12pt] DTS_L + \dfrac{DTS_L - DTS_n}{N} \,, & n \ne 0 \end{array}$ $\}$ in case of an N-times speed reverse trick

play mode and wherein $DTS_n{}'$ is a new DTS value corresponding to the decoding time point and

DTS_L is a DTS value of a first I picture at the beginning of a reverse trick play.

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5. (Previously Presented) The apparatus of claim 1, wherein the transmission control unit is configured to output a PCR value of a next picture following a picture to be played back as a PCR value to be transmitted for the STC count initialization in case of an N-times speed reverse trick play mode.

6. (Currently Amended) The apparatus of claim 1, wherein if a playback mode and a first picture to be played back are determined, the demux is configured to initialize ~~an STC count value~~the STC count becoming a reference of the decoding time point with a PCR value of the determined picture and ~~an STC~~the STC count is then synchronized with ~~an STC (system count clock)~~the STC according to a playback direction to be sequentially incremented or decremented.

7. (Currently Amended) The apparatus of claim 1, wherein the decoder is configured to sequentially increment the STC count in case of a forward trick play or sequentially decrement the STC count in case of a reverse trick play.

~~determine the decoding time point by comparing the sequentially incremented or decremented STC count value to a readjusted DTS value.~~

8. (Currently Amended) A digital video record/playback apparatus, comprising:

a record control unit configured to only select transport packets corresponding to a program to be stored in a transport stream, the record control unit configured to extract picture information and PCR (program clock reference) of the program to be used in playback;

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a storage medium configured to store the transport packets of the program selected in the record control unit, the picture information, and the PCR of the selected program;

an output control unit configured to output a predetermined playback mode;

a transmission control unit configured to control a transmission bit rate and transmission time point of the transport stream based on the predetermined playback mode and ~~VBV (video buffering verifier)~~ buffer status information;

a demux configured to perform ~~an STC~~a STC (system time clock) count initialization ~~and STC count control~~ on a PCR (program clock reference) packet of the transport stream inputted via the transmission control unit, <u>the demux configured to synchronize the STC count with a STC,</u> the demux <u>further</u> configured to extract ES (elementary stream) data for a program data packet of the transport stream;

~~a VBV~~a buffer configured to temporarily store the extracted ES data, ~~the VBV buffer playing~~<u>the buffer configured to play</u> a role in buffering between the transmission bit rate and a decoding frame rate, ~~the VBV~~<u>the</u> buffer configured to output a buffer status to the transmission control unit; and

a decoder configured to adjust DTS (decoding timestamp) according to the predetermined playback mode of the output control unit, the decoder configured to control a decoding time point by comparing <u>a difference between</u> the adjusted DTS ~~to an STC count value~~<u>and the STC count to a reference time</u> and decoding the ES data outputted from ~~the VBV~~<u>the</u> buffer.

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9. (Previously Presented) The apparatus of claim 8, wherein the record control unit is configured to store information of a location where a picture is stored, information of a location where a PCR value of the picture is stored, and each picture type in the storage medium, wherein the record control unit stores associative relation to the location information of the picture recorded in the storage medium by searching index information of the picture type, and wherein a time stamp is not stored in the storage medium.

10. (Previously Presented) The apparatus of claim 8, wherein the storage medium has a capacity sized to store digital video streams and is randomly accessible.

11. (Currently Amended) The apparatus of claim 8, wherein the transmission control unit adopts an equation of {
$$R_n = \begin{array}{l} \dfrac{B - B_n}{t_{n+1} - t_n} \quad , \quad if \ R_n \le R_{t\,max} \\[12pt] R_{t\,max} \quad , \quad if \ R_n > R_{t\,max} \end{array}$$
} to control the transmission bit rate R_n in case of a normal playback mode and wherein t_{n+1}-t_n is a decoding cycle, B-B_n is a vacant quantity of ~~the VBV~~the buffer, and R_{tmax} is a maximum transmission bit rate.

12. (Previously Presented) The apparatus of claim 8, wherein the transmission control unit is configured to control the decoding time point by adjusting the DTS by adopting an equation of {
$$DTS'_n = \begin{array}{l} DTS_0 \quad , \qquad\qquad n = 0 \\[12pt] DTS_0 + \dfrac{DTS_n - DTS_0}{N} \quad , \qquad n \ne 0 \end{array}$$
} in case of an N-times speed

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forward trick play mode and wherein $DTS_n{'}$ is a new DTS value corresponding to the decoding

time point and DTS_0 is a DTS value of a first picture at the beginning of a trick play.

13. (Previously Presented) The apparatus of claim 8, wherein the transmission control

unit is configured to control the decoding time point by adjusting the DTS by adopting an

equation of $\left\{ \begin{array}{ll} DTS{'}_n = & DTS_L \ , \qquad\qquad n = 0 \\[2ex] DTS_L + \dfrac{DTS_L - DTS_n}{N} \ , \qquad n \neq 0 \end{array} \right\}$ in case of an N-times speed

reverse trick play mode and wherein $DTS_n{'}$ is a new DTS value corresponding to the decoding

time point and DTS_L is a DTS value of a first I picture at the beginning of a reverse trick play.

14. (Previously Presented) The apparatus of claim 8, wherein the transmission control

unit is configured to output a PCR value of a next picture following a picture to be played back

as a PCR value to be transmitted for the STC count initialization in case of an N-times speed

reverse trick play mode.

15. (Currently Amended) The apparatus of claim 8, wherein if a playback mode and a

first picture to be played back are determined, the demux is configured to initialize ~~an STC count~~

~~value~~the STC count becoming a reference of the decoding time point with a PCR value of the

determined picture and ~~an STC~~the STC count is then synchronized with ~~an STC (system count~~

~~clock)~~the STC according to a playback direction to be sequentially incremented or decremented.

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16. (Currently Amended) The apparatus of claim 8, wherein the decoder is configured to sequentially increment the STC count in case of a forward trick play or sequentially decrement the STC count in case of a reverse trick play.

~~determine the decoding time point by comparing the sequentially incremented or decremented STC count value to a readjusted DTS value.~~

17. (Currently Amended) A playback method in a digital video record/playback apparatus, comprising:

a step (a) of storing transport packets of a selected program, picture information, and a PCR (program clock reference) of the selected program;

a step (b) of performing a STC (system time clock) count initialization using a value of the stored PCR and ~~incrementing or decrementing an~~synchronizing the STC count with a STC according to a direction of a trick play mode;

a step (c) of adjusting a DTS (decoding timestamp) of a picture to be decoded according to the direction and multiple-times speed of the trick play mode; and

a step (d) of decoding to output picture data of the selected program by controlling a decoding time point by comparing ~~a value of~~a difference between the adjusted DTS ~~to a value of the incremented or decremented STC count~~and the STC count to a reference value and by referring to the picture information according to the trick play mode.

18. (Original) The playback method of claim 17, wherein in the step (b), the STC count is sequentially incremented in case of a forward trick play or sequentially decremented in case of a reverse trick play.

19. (Original) The playback method of claim 17, wherein in the step (c), the decoding time point is controlled by adjusting the DTS by adopting an equation of

$$DTS'_n = \begin{cases} DTS_0 , & n = 0 \\ DTS_0 + \dfrac{DTS_n - DTS_0}{N} , & n \neq 0 \end{cases}$$ in case of an N-times speed forward trick

play mode and wherein DTS_n' is a new DTS value corresponding to the decoding time point and DTS_0 is a DTS value of a first picture at the beginning of a trick play.

20. (Original)The playback method of claim 17, wherein the decoding time point is controlled by adjusting the DTS by adopting an equation of

$$DTS'_n = \begin{cases} DTS_L , & n = 0 \\ DTS_L + \dfrac{DTS_L - DTS_n}{N} , & n \neq 0 \end{cases}$$ in case of an N-times speed reverse trick

play mode and wherein DTS_n' is a new DTS value corresponding to the decoding time point and DTS_L is a DTS value of a first I picture at the beginning of a reverse trick play.

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